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REMARKS

This communication is in response to the final Office Action mailed on July 21, 2004. In the Office Action claims 1-11 and 13-40 were pending of which all were rejected.

Rejections based on 35 U.S.C. §112, paragraph 1

The Office Action first reports claims 1-11 and 13-17 were rejected under 35 U.S.C. §112, paragraph 1 as being non-enabled by the original disclosure. Specifically, the examiner points out that claims were directed to Asian languages while the examples presented in the disclosure were directed towards the English language.

It is submitted that the test of enablement includes a test of whether one skilled in the relevant art would be enabled by the disclosure. It is respectfully submitted that those skilled in the relevant art would be familiar with attributes of both English and Asian languages, especially Kanji-based languages such as Chinese and Japanese. It is believed that such people would not be troubled, for example, by English language illustrations of a method of disambiguating Kanji-based characters.

Further, it is noted that the background of the invention provides relevance of the pending claims to Asian languages, especially Kanji-based languages such as Chinese and Japanese by providing:

> The ambiguity problem is particularly prevalent in languages such as Japanese or Chinese, which are written heavily with the Kanji writing system. The characters of these languages are numerous, complicated ideographs that represent sound and meaning. The characters form limited syllables, which in turn, creates a large number of homonyms that significantly lengthens the time necessary to create a document by dictation. In particular, the incorrect homonym characters must be identified in the document and the correct homonym character must then be inserted. [Specification, page 2, lines 13-22]

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It is further noted that the independent claims, claims 1, 18, and 31 have been amended to substitute --Kanji-based characters-- in place of than "Asian characters" to further clarify that the characters are Kanji- or Chinese-based characters. It is believed that such an amendment is supported in the original disclosure at least at the above-referenced paragraph, and thus, add no new matter.

In light of the foregoing, it is respectfully submitted that Kanji-based examples were not required in the original disclosure to enable those skilled in the art to make and use the invention; and further, that English languages illustrations are also not required but can be helpful in illustrating attributes of the invention. Therefore, it is believed that all pending claims meet the requirements of 35 U.S.C. §112, paragraph 1.

Rejections based on 35 U.S.C. §102

The Office Action next reports that claims 1-7, 10-11, 13, and 15-40 were rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,163,767 to Tang (hereinafter "Tang").

Claim 1 has been amended to recite, a method for creating a language model for a speech recognition system to disambiguate characters of an Asian language, the method comprising constructing a training corpus comprising the steps of obtaining a dictionary of word phrases, for each word phrase of the dictionary of word phrases comprising Kanji-based characters, associating a character of the word phrase and the word phrase with a context cue indicative of disambiguating the character to automatically generate context cue phrases of the training corpus, and using the training corpus to build the language model. [emphasis added]

Amendments to claim 1 clarify that phrases of the training corpus are automatically generated from associating word phrases (from a dictionary), characters of the word phrase, and a context cue. These training corpus phrases are used for training the

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statistical language model, such as an N-gram language model. Thus, the present inventions may include some features similar to Tang, especially its Type B method of describing a character with the help of a related word. However, it is believed that the present inventions are advantageous because the associating and generating of context cue phrases occur automatically, without the need for human beings.

In contrast, it is believed that Tang's numerous ways or rules of describing characters or English letters, i.e. Types A to F must be described or encoded using human beings, which is believed to be a more cumbersome process. These character descriptive rules are applied when the system detects a particular pattern matching one of its rules. For example, Tang provides,

> Based on above rules, CDL grammar analyzer analyzes grammatically the output of the CDL based speech recognizer. When it satisfies a particular type of grammar definition, the correspondent part of the character generator is invoked and the correspondent Chinese character is generated. This procedure iterates till the grammar analysis for the whole description sentence is finished.

Also, it is respectfully submitted that in the present inventions, the generated context cue phrases become part of the training corpus used to build and train the language model. Claim 3 further clarifies that the language model is an N-gram language model which clarify that the generated context cue phrases are a sequence of characters including a word phrase, context cue, and at least one character.

It is respectfully submitted that the method of claim 1 is patentably distinct over Tang at least because it constructs a language model using training corpus which includes generated context cue phrases (e.g. "tai wan de tai") rather than applying sets of character descriptive rules as in Tang. It is believed that the language model constructed in accordance with claim 1 is more accurate in resolving certain types of spoken phrases (e.g.

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"tai wan de tai") than the Tang method. Therefore, it is believed that claim 1 is patentable over Tang. Claims 2-4, 6-11, and 13-17 depend on claim 1 and are believed to be separately patentable. Claims 5 and 12 have been previously or presently canceled. Reconsideration and allowance of claims 1-4, 6-11, and 13-17 are respectfully requested.

Claim 18 has been amended to recite a computer readable medium having instructions, which when executed by a processor perform a method for recognizing Kanji-based characters when spoken, the method comprising receiving input speech having a context cue phrase, the context cue phrase comprising a Kanji-based character, a word phrase having the Kanji-based character, and a context cue, wherein the context cue is indicative of disambiguating the character, detecting the context cue phrase in the received input speech without prompting, executing instructions for accessing a language model, wherein the language model comprises an N-gram language model having probability information for the context cue phrases, and outputting the character as text without the word phrase and the context cue for the detected context cue phrase. [emphasis added]

The comments with respect to claim 1 are incorporated herein. Thus, claim 18 has been amended to clarify that its speech recognition system includes accessing an N-gram language model having probability information for the context cue phrases. As discussed above, claim 18 is believed patentably distinguishable over Tang because it accesses a language model having probability information for context cue phrases rather than rely on an iterative process for applying a set of grammar rules as accordance with Tang's teachings. It is believed that a speech recognition system in accordance with claim 18 would be advantageous due to being computationally less complex than a speech recognition system applying grammatical rules according to Tang.

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In light of the foregoing, it is believed to claim 18 is patentable over Tang. Claims 21, and 24-30 depend on claim 18 and are believed to be separately patentable. Claims 19-20 and 22-23 have been canceled. Reconsideration and allowance of claims 18, 21, and 24-30 are respectfully requested.

Claim 31 has been amended to recite a computer readable medium having instructions, which when executed by a processor, for recognizing Kanji-based character strings when spoken, the instructions comprising a language model indicative of context cue phrases and probability information for the context cue phrases, wherein the context cue phrases consist essentially of associated Kanji-based character strings, word phrases having the character strings and context cues, and a recognition module for receiving data indicative of input speech, the recognition module detecting the presence of context cue phrases in the input speech without prompting indicative of character strings as text, accessing the language model, and outputting a Kanji-based character string as text for at least some detected context cue phrases spoken by the user based on the probability information in the language model. [emphasis added]

Remarks relating to claims 1 and 18 are herein incorporated. Therefore, it is submitted that the amendments to claim 31 clarify that the speech recognition system of claim 31 accesses a language model having probability information for context cue phrases and does not rely on applying sets of grammar rules in accordance with Tang. Therefore, it is believed to claim 31 is patentable over the cited art. Claims 32-40 depend on claim 31 and are believed to be separately patentable. Reconsideration and allowance of claims 31-40 are respectfully requested.
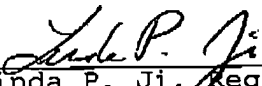
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The Director is authorized to charge any fee deficiency required by this paper or credit any overpayment to Deposit Account No. 23-1123.

Respectfully submitted,

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